

Activity Survey for Bats

Location: Double Gates Nursey, Sytch Road, Brown Edge, Staffordshire, ST6 8QX.

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May 2022

Notice to readers

This report has been prepared by Absolute Ecology with all reasonable skill, care and diligence, within the terms of the contract with the client. The actions of the surveyor on site, and during the production of the report were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management (www.cieem.org.uk).

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The results of the survey and assessment work undertaken by Absolute Ecology are representative at the time of surveying.

Every endeavour has been made to identify the presence of protected species on site, where this falls within the agreed scope of works.

The flora and fauna detailed within this report are those noted during the field survey and from anecdotal evidence. It should not be viewed as a complete list of flora and fauna species that may frequent or exist on site at other times of the year.

Up to date standard methodologies have been used, which are accepted by Natural England and other statutory conservation bodies. No responsibility will be accepted where these methodologies fail to identify all species on-site.

Absolute Ecology cannot take responsibility where Government, national bodies or industry subsequently modify standards.

Absolute Ecology cannot accept responsibility for data collected from third parties.

Reference to sections or particular paragraphs of this document taken out of context may lead to misrepresentation.

Executive summary

Absolute Ecology was commissioned to undertake a bat survey for the bat roost potential at a site known as Double Gates Nursey, Sytch Road, Brown Edge, Staffordshire, ST6 8QX (centred at Ordnance Survey Grid Reference (OSGR) SJ 9050 5338).

This report has been prepared with due consideration for various best-practice guidance and methodologies including those of the Chartered Institute of Ecology and Environmental Management (CIEEM (2012), BS 42020, and the Bat Conservation Trust Best Practice 3rd Edition 2016.

Proposals have been made to demolish ten onsite buildings to facilitate the construction of three residential properties.

A building assessment was carried out December 2021 by Elite Ecology as part of a Preliminary Ecological Appraisal. They concluded that of the ten assessed buildings, the following had potential for supporting roosting bats;

- B1, B2 and B9 – low roosting potential
- B3 and B7 – moderate roosting potential

Absolute Ecology LLP were appointed to carry out the subsequent presence/absence surveys. During the first visit (02/05/2022) it was noted that B3 is no longer present onsite. Survey schedule summarised below;

- Survey 1 – dawn re-entry 02/05/2022 – B7
- Survey 2 – dusk emergence 04/05/2022 – B1, B2
- Survey 3 – dusk emergence 05/05/2022 – B9
- Survey 4 – dusk emergence 16/05/2022 – B7

The results of the bat activity surveys, which were conducted during the optimum survey period, has **confirmed an absence of bats within B1, B2, B7 and B9.**

Minor bat activity was recorded throughout each survey period, although no bats were seen entering or exiting any of the buildings. Confirmed species of bat recorded foraging/commuting across the site; common pipistrelle (*Pipistrellus pipistrellus*), Noctule (*Nyctalus noctula*) and Natterer's (*Myotis nattereri*).

As no bat roosts were identified during the surveys, it will not be necessary to apply for an Natural England European Protected Species (EPS) licence and no further survey actions are considered necessary. However, where surveys have demonstrated a likely absence of bats in a building, it should be noted that it is possible that bats could begin to utilise the building at any time, and any works should be undertaken with care and vigilance for bats. Should bats be found during development, then all works must cease and a qualified bat ecologist should be consulted.

Swallows (*Hirundo rustica*) were observed entering and exiting B7 during the surveys, indicating the presence of a nest. Demolition works on B7 should therefore avoid the nesting season (which runs March-August). As the development will result in the loss of a nesting opportunities for swallows, replacement features should be incorporated (see section 6.0 for further details).

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2.0 Introduction

Background

- 2.1 Absolute Ecology was commissioned to undertake a bat survey for the bat roost potential at a site known as; Double Gates Nursey, Sytch Road, Brown Edge, Staffordshire, ST6 8QX (centred at Ordnance Survey Grid Reference (OSGR) SJ 9050 5338).
- 2.2 The initial building assessment was undertaken December 2021 by Elite Ecology. This was updated on 2nd May 2022 by Matthew Haydock an experienced and licensed ecologist who is a full Member of the Chartered Institute of Ecology & Environmental Management (ACIEEM).
- 2.3 The scope of this appraisal has been determined in line with the proportional approach to ecological survey, assessment and subsequent recommendations for avoidance and mitigation of impacts, which is encouraged in the emerging 'BS 42020: Biodiversity – Code of practice for planning and development'. This report has been prepared with due consideration for various best-practice guidance and methodologies including those of the Chartered Institute of Ecology and Environmental Management (CIEEM (2012)) and the emerging BS 42020, and the Bat conservation Trust Best Practice 2016.
- 2.4 The objective of this report is to provide the client with information on any known or potential protected or rare species that may be using the site, and to outline recommendations on how to proceed with the works in a legal and ecologically sensitive manner.
- 2.5 Unless the client indicates to the contrary, information on the species found to be present on the site will be passed to the county biological records centre to update records held for the area.

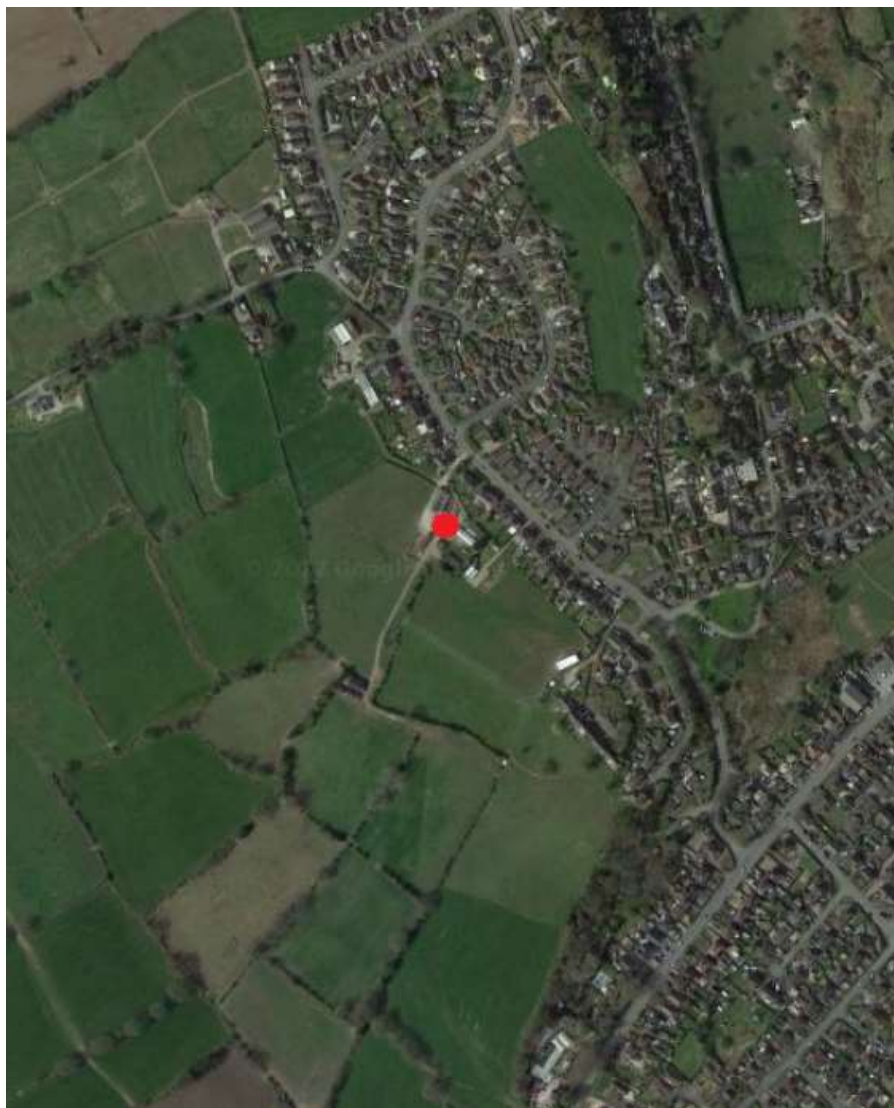
Proposed Works

- 2.6 Proposals have been made to demolish ten onsite buildings to facilitate the construction of three residential properties.

Site Description

- 2.7 The site is located on the western edge of Brown Edge, a village and civil parish in the Staffordshire Moorlands district of Staffordshire. Residential properties immediately bound the sites eastern side with grassland fields bounding the remainder. Habitats onsite include amenity grassland, bare ground, buildings, hedgerow, introduced shrub, scattered trees.
- 2.8 Within the wider landscape, are a number of features of ecological interest including grassland fields, arable fields, waterbodies and water courses, woodland, hedgerows/tree lines.

Figure 1: Showing site location.



Aims of the Survey

Bats

- 2.9 The aims of the Preliminary Roost Assessment and presence/absence activity surveys is to provide an ecological evaluation of bats within the proposed application area, to include the following;
- Probability of bats and their roost sites being present at the proposed redevelopment site.
 - To assess the roost status.
 - To assess suitable food resources and habitat requirements.
 - If a roost site is found, to provide an impact assessment.
- 2.10 A bat roost is interpreted as 'any structure or place, which any wild bat uses for shelter or protection'. Bats tend to show a high fidelity to roosts. Subsequently, legal opinion regards a roost to be protected whether or not the bats are present at the time. There are many types of roost used by temperate bats during their annual cycle. Any structures found having evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite (if any):

Table 1: Bat Roost Types and Definitions

Type	Definition
Maternity / Nursery Roost	Used by breeding bats, where pups are born and raised to independence (Anecdotal evidence may support this prospect despite sub-optimal survey period).
Hibernation Roost	Where bats may be found during the winter. (This is assessed within the context of this report).
Day Roost	Used by males and/or non-breeding females (Seasonal limitations prevent robust analysis of this).
Night Roost	Where bats rest between feeding bouts during the night but are rarely present during the day.
Feeding Roost	Where bats temporarily utilize feeding perches and stations to eat an item of prey.
Transitional/occasional roost	Used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
Swarming Site	Where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites.
Mating sites	Where mating takes place from late summer and can continue through winter.
Satellite roost	An alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.

- 2.11 Should bats be present onsite, then a European Protected Species (EPS) development license issued by Natural England (NE) may be required prior to any works taking place. If required, further presence/absence survey should be undertaken and a mitigation strategy be implemented with Natural England and the Local Planning Authority. Should no further surveying effort be considered, then the PEA report will include full justification and evaluation.

Birds

- 2.12 In addition, consideration will be given to the presence of breeding birds, to provide an ecological evaluation within the proposed application area, to include the following;
- Establish if birds are using the site.
 - Locate nest sites, if present.
 - Assess suitable food resources and habitat requirements.
 - Provide an impact assessment, if nests are found.
- 2.13 Particular consideration will also be given to the presence of barn owl (*Tyto alba*) within rural locations, to include the following;
- Establish presence onsite.
 - Establish potential nest sites (PNS).
 - Locate any active roost sites (ARS).
 - Locate any temporary roost sites (TRS)
 - Assess potential feeding and dispersal habitats (PFH)
 - Provide an impact assessment, should barn owl(s) be present
- 2.14 Assessment also considers potential effects on valued ecological receptors (VERs) and zones of influence (Zoi) during pre and post development, both onsite and off- site. The term Zone of Influence is used to describe the geographic extent of potential impacts of a proposed development. Should a likely significance of negative impacts be identified, further surveys, mitigation and enhancement measures will then be determined accordingly; to prevent, offset or reduce the degree of impact that may occur should development commence.

3.0 Methodology

Desk Study

- 3.1 Elite Ecology's Preliminary Ecological Appraisal (December 2021) undertook a 2km data search, assisted by Staffordshire Ecological Record (SER). Please see full report for further information.

Building/Tree Inspection

- 3.2 All bat species resident in the UK have been recorded using trees, buildings and built structures, e.g. bridges, at some time during the year (Bat Conservation Trust, 3rd edition 2016).
- 3.3 Building inspections adhere to guidance within the Bat Mitigation Guidelines (Mitchell Jones 2004) and within Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins 2016). Surveys involve external and internal examinations of relevant areas.
- 3.4 Equipment used to support the assessment include binoculars and a high-powered torch, with an endoscope on hand for any accessible crevices. Throughout the building inspections, evidence of use by bats (including bat presence, droppings, feeding remains, urine stains and grease marks) was searched for, in addition to suitable potential access and roosting points. These can include gaps beneath ridge tiles, lifted/raised roof tiles, missing tiles, missing/damaged doors and windows, gaps behind fascia boards and in soffit boxes, gaps beneath lead flashing and crevices in the brickwork. Internally, loft spaces (where safe to do so) are also inspected for evidence of bat use, as well as bats themselves.
- 3.5 Any trees within the survey area will also be assessed for any features that may present suitable opportunities to roosting bats. Such features can include: lifted bark, knot holes, woodpecker holes, rot holes, splits, cavities, bat boxes and densely-plated ivy growth.
- 3.6 Any onsite buildings/trees will be assigned a value for its bat roosting potential, as described in Table 2 (adapted from Collins, 2016).

Table 2: Buildings and Trees Assessment Criteria

Suitability	Description	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger number of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roosting features (PRF's) but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a happy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.

Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees. Scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parkland. Site is close to known roosts.

- 3.7 The classification of the building and trees corresponds to the level of further survey effort required i.e. the number of recommended emergence/re-entry surveys for bats, in accordance with best practice guidance (Collins 2016), as shown in Table 3;

Table 3: Minimum number of survey visits to give confidence in a negative result, and timings

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry (structures).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.
No further survey required (trees).	May to September with at least one of the surveys between May and August.	May to September with at least one of the surveys between May and August.
May to August.		

Activity Surveys

- 3.8 Bat ultrasound data is gathered using a number of heterodyne (Batbox Duet and SSF Bat2) and real-time recording devices (Wildlife Acoustics Echo Meter Touch). Real-time recordings were subsequently analysed using Bat Explorer software. Surveyors are positioned around the building/tree in order to cover all vantage points/elevations.
- 3.9 All surveys were carried out during optimal weather conditions and period for bat activity – sunset temperature 10°C or above, no rain or strong wind. Following best practice guidance; Dusk emergence surveys commenced 15minutes before sunset until 1.5-2hours after sunset. Dawn re-entry surveys commenced 1.5hours before sunrise until 15minutes after sunrise.

Surveyor Information

Surveyor 1

- 3.10 Matthew Haydock – HND, ND, MIEEM, Natural England Bat Survey Class Licence CL18, Registration Number CLS01637. Matthew is an ecologist with 16 years' experience of environmental consultancy work. Matthew is an experienced bat surveyor with competency in activity surveys, dawn and dusk bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts and the production of reports providing advice on best practice, mitigation and compensation works relating to bats as may be required. Matthew has been an active bat group worker with the Staffordshire Bat Group since 1997, conducting various surveys throughout Staffordshire and Derbyshire. He also works alongside the Bat Conservation Trust with various projects such as the National Bat Monitoring Project, and is now a corporate member of the Bat Conservation Trust.

Surveyor 2

- 3.11 Helen Staton – BSc (Hons) ACIEEM, Natural England Bat Survey Class Licence Registration Number: 2015-14490-CLS-CLS. Helen has been working for ecological consultancies for over ten years and has held a Level 1 bat licence for 8 years. Helen is an experienced bat surveyor with competency in activity surveys, dawn and dusk bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts and the production of reports providing advice on best practice, mitigation and compensation works relating to bats as may be required.

Surveyor 3

- 3.12 Carrie Alcock - BSc (Hons). Carrie has been working as an Assistant Ecologist for Absolute Ecology since June 2017. Carrie is competent with activity surveys, dawn and dusk, bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts.

Surveyor 5

- 3.13 Lucy Haydock. Lucy has been working as an Assistant Ecologist for Absolute Ecology for over ten years. Lucy is competent with activity surveys, dawn and dusk, bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts.

Surveyor 4

- 3.14 Stephanie Edge. Stephanie is working as an Assistant Ecologist for Absolute Ecology and has undergone training to allow her to assist on dusk and dawn activity surveys.

4.0 Results

Desk Study – Map shown within Appendix 1

- 4.1 Please see Elite Ecology's report titled 'Double Gates Nursery Brown Edge, Preliminary Ecological Appraisal' December 2021 for desk study results.

Building Inspection

- 4.2 Please see Elite Ecology's report titled 'Double Gates Nursery Brown Edge, Preliminary Ecological Appraisal' December 2021 for full building inspection results/photos.
- 4.3 In summary, Elite Ecology concluded the following;
- B4, B5, B6, B8 – negligible roosting potential
 - B1, B2 and B9 – low roosting potential
 - B3 and B7 – moderate roosting potential
- 4.4 An update building inspection was carried out by Matthew Haydock on 04/05/2022. During this survey it became apparent that B3 was no longer present onsite, therefore B3 was omitted from further survey. The remainder of the buildings appeared as described by Elite Ecology.

Activity Surveys

- 4.5 Absolute Ecology LLP undertook subsequent bat activity surveys to confirm the presence/absence of bats within B1, B2, B7 and B9, using information obtained by during previous site inspections. Two-three surveyors were present on each visit.

Timings and Abiotic Variables

Table 4: Timings and Abiotic variables

B7 Abiotic variables during survey 1: Dawn re-entry			
Date: 02/05/2022			
Sunrise: 05:31			
Temp Start	9.4 °C	Cloud Cover Start	80%
Temp Finish	10.3°C	Cloud Cover Finish	80%
Wind Speed Average	<2mph	Precipitation	Nil
B1 and B2 Abiotic variables during survey 2: Dusk emergence			
Date: 04/05/2022			
Sunset: 20:43			
Temp Start	10.2 °C	Cloud Cover Start	90%
Temp Finish	11.1 °C	Cloud Cover Finish	100%

Wind Speed Average	<5 mph	Precipitation	Nil
B9 Abiotic variables during survey 3: Dusk Emergence			
Date: 05/05/2022			
Sunset: 20:45			
Temp Start	15.2 °C	Cloud Cover Start	80%
Temp Finish	13.1°C	Cloud Cover Finish	80%
Wind Speed Average	<5mph	Precipitation	Nil
B7 Abiotic variables during survey 3: Dusk Emergence			
Date: 16/05/2022			
Sunset: 21:03			
Temp Start	14.4 °C	Cloud Cover Start	20%
Temp Finish	13.7°C	Cloud Cover Finish	30%
Wind Speed Average	<5mph	Precipitation	Nil

Results summary (full results tables shown in Appendix)

Table 5: Activity Results

Survey number	Building reference	Summary
1 Dawn	B7	B7 – no bats seen to re-enter the building. Minor bat activity observed from common pipistrelle bats, a total of six observations (foraging and commuting).
2 Dusk	B1 and B2	B1 – no bats seen to emerge B2 – no bats seen to emerge Minor bat activity observed from common pipistrelle bats, a total of eight observations (foraging and commuting). One noctule pass also recorded.
3 Dusk	B9	B9 – no bats seen to emerge. Minor bat activity observed from common pipistrelle bats, a total of six observations (foraging and commuting). Two noctule passes also noted and one count of a Natterer's bat commuting onsite also noted.
4 Dusk	B7	B7 – no bats seen to emerge

Roost Status

B1 – no roost present

B2 – no roost present

B7 – no roost present

B9 – no roost present

Figure 2: Building plan and surveyor locations



5.0 Assessment

Constraints

Constraints on Survey Information

- 5.1 All activity surveys were carried out during May 2022. This period is considered as being an optimal survey period in order to evaluate the presence or absence of bats.

Constraints on Equipment Used

- 5.2 No constraints were present with regards to the equipment used during the scoping effort (i.e. bat detectors, endoscope, ladders and high-powered binoculars).

Potential Impacts of Development

Roosts

- 5.3 No roosts identified. The results of the surveys have confirmed an absence of bats within B1, B2, B7 and B9.

6.0 Recommendations and Mitigation

Bats

Further Surveys

- 6.1 It is considered that a reasonable amount of survey effort has been applied, thus no further surveys are required. However, further surveys would be considered necessary if no redevelopment has commenced within two years of this report.

Mitigation Measures

- 6.2 No Natural England licence will be required as no roosting bats were evident.

Recommendations

Lighting

- 6.3 Particular consideration should be given to potential light spill that can affect the foraging and commuting strategy of many species and should be avoided onto nearby habitats.
- 6.4 Where possible, any onsite security lighting should be on a timer setting and faced down to prevent spillage onto nearby habitats. Height of any lighting columns around the development should not exceed eight meters to further reduce any ecological impact of light pollution.
- 6.5 The Institution of Lighting Professionals and the Bat Conservation Trust produced a guidance note on 'Bats and Artificial Lighting in the UK' (2018) which can be viewed at [file:///C:/Users/User/Downloads/ilp-guidance-note-8-bats-and-artificial-lighting-oct-18-compressed%20\(1\).pdf](file:///C:/Users/User/Downloads/ilp-guidance-note-8-bats-and-artificial-lighting-oct-18-compressed%20(1).pdf) The guidance note is intended to raise awareness of the impacts of artificial lighting on bats, with mitigation suggestions included for various scenarios.

Scaffolding

- 6.6 As a further precautionary measure, it is recommended that no plastic sheeting or mesh be used on any scaffolding erection during the development, to prevent potential snaring and entanglement of volant bats.

Biodiversity enhancement

- 6.7 It is recommended that bat boxes are incorporated into the development, in order to provide additional roosting opportunities. Bat boxes can be fitted externally on new buildings, or integrated into the walls (see Table 6 for examples).
- 6.8 Further information of providing access for roosting bats can be found on: Bat Conservation Trust website: www.bats.org.uk/pages/new_build.html. The Nest Box Company: www.nestbox.co.uk/Improved-Treble-Crevice-Bat-Box.html NHBS: www.nhbs.com/schwegler_bat_boxes_eqcat_422.html

Table 6: Example bat features (Photos taken from www.nhbs.com)

Bat Feature Type			
Bat boxes installed external on walls	Beaumaris Woodstone Bat Box 	Schwegler 1FQ 	Vincent Pro Bat Box 
Bat boxes integrated into brick walls (i.e. new builds)	Habibat Bat Box 001 	Ibstock Enclosed bat Box 	Vivara Pro Build-In 
Bat boxes for trees	Schwegler 2F Bat Box 	Improved cavity Bat Box 	Schwegler 2FN 
Roof features	Bat Access Tile Set 	Habibat Bat Access Slate 	Vented/modified ridge tile 

Landscaping

- 6.9 It is encouraged that any landscaping relating to the proposed development should encompass native tree and shrub species to encourage foraging potential for species. No plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 should be planted during any landscaping within this development. For further details of Schedule 9 plants visit the Defra website: www.defra.gov.uk/wildlife-pets/non-native
- 6.10 Ideas to encourage bats include;
- Planting of night-scented flowers
 - Build a pond
 - Make a compost heap or log pile
 - Avoid use of pesticides
 - Letting your garden grow a little wild
 - Creating linear features i.e. hedgerow or tree line
 - Reduce or remove artificial light
 - Keep cats indoors at night
- 6.11 See Bat Conservation Trust Encouraging Bats leaflet for further information; https://cdn.bats.org.uk/pdf/Resources/Encouraging_Bats.pdf?mtime=20181101151549&focal=none

Birds

- 6.12 Swallows (*Hirundo rustica*) were observed entering and exiting B7 during the surveys, indicating the presence of a nest. Demolition works on B7 should therefore avoid the nesting season (which runs March-August).
- 6.13 Swallows are known to return to the same site to nest each year. As the development will result in the loss of a nesting opportunities for swallows, replacement features should be incorporated. Artificial nests can be installed within the retained stable block opposite B7. Examples include <https://www.nhbs.com/eco-swallow-nest> and <https://www.wildcare.co.uk/swallow-nest.html>

7.0 Summary

Bats

- 7.1 During the surveys, low levels of common pipistrelle, Noctule and Natterer's bat activity were recorded onsite, but no evidence that the onsite buildings are being used by roosting bats was found. Therefore, it has been concluded that the building can be demolished without the need for a Natural England European Protected Species (EPS) licence, as impact on the local bat population is negligible.
- 7.2 Recommendations to minimise disturbance to bats which feed and commute onsite, and possible ways of enhancing the site for bats have been suggested.

Nesting birds

- 7.3 Swallows were observed entering and exiting B7 during the surveys. Suggestions for mitigation has been suggested.
- 7.4 No evidence of owl utilisation observed within any of the buildings.

8.0 References

- Anon (1995) *Guidelines for Baseline Ecological Assessment*. Institute of Environmental Assessment. Chapman & Hall.
- Anon (1995) *The UK Biodiversity Action Plan*. Joint Nature Conservation Committee, Peterborough.
- Anon (1999) *Advice Sheet 10: Reptile Survey*. Froglife, Peterborough.
- Anon (2002) *Badgers and Development*. English Nature, Peterborough.
- Anon (2003) *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit* (Revised reprint). Joint Nature Conservancy Council, Peterborough.
- Anon (2004) *Reptiles: Guidelines for Developers*. English Nature, Peterborough.
- Foster, J. (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.
- Gent, T. & Gibson, S. (1998) *Herpetofauna Workers Manual*. Joint Nature Conservation Committee, Peterborough.
- Hundt L (2012) *Bat Surveys: Good Practice Guidelines*, 2nd edition, Bat Conservation Trust.
- Mitchell-Jones, A.J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.
- Mitchell-Jones, A.J. & McLeish, A.P. [Eds.] (2004). *The Bat Workers Manual* (3rd edition). Joint Nature Conservancy Council, Peterborough.
- Rose, F. (1991). *The Wild Flower Key*. Frederick Warne, London.

Websites used:

Protected Sites: www.magic.gov.uk

Protected Species: <http://data.nbn.org.uk/>

Rotherham Biodiversity Action Plan:
http://www.rotherham.gov.uk/info/1009/wildlife/946/biodiversity_action_plan/1

UKBAP: <http://jncc.defra.gov.uk/page-5155>

www.rspb.org.uk

www.streetmap.co.uk

www.maps.google.co.uk

www.bing.com/maps

Web addresses for access to full UK legislation and policy text:

Conservation (Natural Habitats &c.) Regulations 1994:
http://www.opsi.gov.uk/si/si1994/uksi_19942716_en_1

Conservation (Natural Habitats &c.) (Amendment) Regulations 2007:
http://www.opsi.gov.uk/si/si2007/uksi_20071843_en_1

Conservation (Natural Habitats &c.) (Amendment) Regulations 2009:
http://www.legislation.gov.uk/uksi/2009/6/pdfs/uksi_20090006_en.pdf

Habitats Directive:
http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

Wildlife and Countryside Act 1981:
<http://www.legislation.gov.uk/ukpga/1981/69>

Countryside and Rights of Way Act 2000:
<http://www.legislation.gov.uk/ukpga/2000/37/contents>

Protection of Badgers Act 1992:
http://www.opsi.gov.uk/ACTS/acts1992/ukpga_19920051_en_1

Natural Environment and Rural Communities Act 2006:
<http://www.legislation.gov.uk/ukpga/2006/16/contents>

National Planning Policy Framework 2012:
<http://www.communities.gov.uk/publications/planningandbuilding/nppf>

Appendix 1: Full Activity Survey Results

Survey 1: 02/05/2022 – B7 – Dawn		
Time	Species (common name)	Observed behaviour
03:55	Common pipistrelle	Commuting over site, flew north to south
04:00	Unidentified bat	Foraging adjacent site (to the west) for 10 minutes
04:08	Common pipistrelle	Commuting through site
04:18	Common pipistrelle	Foraging and social calling in flight
04:37	Common pipistrelle	Foraging onsite for 5 minutes
04:55	Common pipistrelle	Foraging to the north of the building
05:00	Common pipistrelle	Commuting to the north
<u>Survey 1 summary</u> B7 – no bats re-entered B7		

Survey 2: 04/05/2022 – B1 & B2 – Dusk		
Time	Species (common name)	Observed behaviour
21:03	Common pipistrelle	HNS – foraging offsite to the north
21:10	Common pipistrelle	Foraging within garden to the north east of B2
21:13	Common pipistrelle	Foraging around the south east side of B1 and site access
21:14	Common pipistrelle	Foraging to the south east of B2 and polytunnel
21:15	Common pipistrelle	Flew onto site from a northerly direction, south towards B7 and the horse stables
21:16	Common pipistrelle	Foraging around B1
21:17	Common pipistrelle	X 2 bats foraging around B7 and the stables
21:22	Noctule	HNS
21:23	Common pipistrelle	HNS – foraging
<u>Survey 1 summary</u> B1 – no bats emerged from B1 B2 – no bats emerged from B2		

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Survey 3: 05/05/2022 – B9 – Dusk		
Time	Species (common name)	Observed behaviour
21:02	Common pipistrelle	Commuting over site
21:08	Noctule	Commuting over site
21:11	Common pipistrelle	Foraging around site
21:18	Common pipistrelle	Commuting through site
21:32	Natterer's	Commuting through site
21:33	Common pipistrelle	Foraging offsite (to the south east) for ten minutes
21:44	Common pipistrelle	Commuting through the site
21:50	Noctule	Commuting/foraging over site
22:03	Common pipistrelle	HNS – foraging
<u>Survey 1 summary</u> B9 – no bats emerged from B9		

Survey 4: 16/05/2022 – B7 – Dusk		
Time	Species (common name)	Observed behaviour
21:28	Noctule	Foraging over site, several passes until 21:40
21:33	Common pipistrelle	Foraging around the south side of B7
21:37	Common pipistrelle	HNS
21:38	Common pipistrelle	Foraging around garden area to the south east
21:39	Common pipistrelle	Foraging around south west side of B7
21:45	Common pipistrelle	Foraging around south west side of B7
21:46	Common pipistrelle	Foraging around garden area to the south east
21:52	Common pipistrelle	Foraging around garden area to the south east until end of the survey
<u>Survey 1 summary</u> B7 – no bats emerged from B7		

Appendix 2: Legislation

Legislation and Policy Guidance

Unlike many smaller mammals, bats have low fecundity with a long and complex life cycle, which is played out over a large spatial landscape. Bats show a strong fidelity to different types of roosts throughout their annual cycle i.e. hibernacula, maternity, bachelor, satellite roosts and feeding perches. Linear features within the landscape such as hedgerows and tree lines are often used by bats for commuting, predator avoidance and foraging. Bats are highly social animals and loss of a single habitat alone can have a serious impact on populations. The status of many bat populations is tentative, being based on relatively few records and are highly susceptible to habitat loss and fragmentation. As such bats are given protected consideration within the following legislation and policy guidelines:

Policy guidelines

PAS 2010	The published 'PAS 2010' 'Planning to halt the loss of biodiversity' which is the government's new policy aimed at all authorities and developers involved in the planning process in the UK to halt biodiversity decline by 2010 and deliver net biodiversity gains as part of the green infrastructure provisions.
National Planning Policy Framework, Section 11:	The recently published framework in 2012, replaces the previous Planning Policy Statement 9. Section 11: Conserving and enhancing the natural environment, reaffirms the Government's commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife, aims to improve the quality of the natural environment, and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.
Article 10 of the EC Habitats Directive:	The published Article requires government to develop features such as 'stepping stones' on the landscape, such as clusters of ponds, tracts of rough grassland or scrubland and vegetated railway line embankments.
Wildlife and Countryside Act 1981:	All species of bat are fully protected under the Wildlife and Countryside Act 1981, the European Conservation (Natural Habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000. This legislation makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.
Conservation of Habitats and Species Regulations (2010)	The Conservation of Habitats and Species Regulations 2010 consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is an offence to possess, sell or offer, or transport for sale any European species of bat or any part derived from such a species. These Regulations also remove the 'incidental result defence'. In other words, it is no longer a defence to show that the killing, capture or disturbance of a species covered by the Regulations or the destruction or damage of their breeding sites or resting places was the incidental and unavoidable result of a lawful activity. Natural England can grant European Protected Species (EPS) licences in respect of development to permit activities that would otherwise be unlawful.

Natural Environment and Rural Communities Act (2006)	Under Section 40 of the Natural Environment and Rural Communities Act (2006), public bodies, including Local and Regional Planning Authorities, have a duty to 'have regard' to the conservation of biodiversity in England when carrying out their normal functions, which includes consideration of planning applications. In compliance with Section 41 of the Act, the Secretary of State has published a list of species considered to be of principal importance for conserving biodiversity in England. This is known as The England Biodiversity List, all of which make up the UK BAP Priority Species. Regional Planning Bodies and Local Planning Authorities will use it to identify the species that should be afforded priority to maintain, restore and enhance species and habitats.
Bird legislation	Most resident nesting birds are protected under the Wildlife and Countryside Act 1981, which protects birds, nests, eggs and nestling's. Some rarer species, such as barn owls, are afforded extra protection.

Please note: If bat species are present at the site, the purpose of this report will only summarize the potential requirements for a bat mitigation package or project. A separate mitigation report or project will include the necessary compensation measures to maintain the conservation status of a European Protected Species.